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value of 40 – 250, and wherein the protective coating is removable with a removing agent comprising a base and a complex former.

47. (New) The method according to claim 46, wherein the composition further comprises a weak base selected from the group of ammonia, mono-, di- and trialkylamines, with the alkyl group containing from 1 to 8 carbon atoms.

48. (New) The method according to claim 47, wherein the weak base is present in an amount of 0.2-5% by weight, based on the weight of the protective agent.

49. (New) The method according to claim 46, wherein the substantially transparent surface is an outside wall of a greenhouse.

REMARKS

Claims 1-14, 18 and 19 stand rejected. Claims 15-17 and 20-29 were withdrawn from consideration and are accordingly cancelled without prejudice or disclaimer. Claims 1-14, 18 and 19 are replaced with claims 30-49 to more clearly define the invention.

35 USC 112, Second Paragraph

Claim 1, 2, 5 and 9 stand rejected as being indefinite under 35 U.S.C. 112, second paragraph.

Claim 1 (now claim 30) was considered indefinite as the term “complex former” is not defined or explained in the specification. The term “complex former” is a synonym to the term “chelating agent”, a substance whose molecules can form several bonds to a single metal ion. An example of a complex former is the trisodium salt of nitrilo-triacetic acid. One skilled in the art would have understood this term based on a reading of the specification.

Claims 2 and 5 have been rewritten as new claims 31, 32, 35 and 36. These claims do not contain the term “preferably”. Similarly, claim 9 has been written as new claim 40 and does not contain the phrase “such as”. Withdrawal of the rejection under 35 USC 112, second paragraph, is requested.

The Claimed Invention

The claimed invention, as defined by claims 30-45 is directed to a protective coating comprising a pigment and a binder, the binder comprising a polymer having a

weight-average molecular weight of 10,000 – 100,000 and an acid value of 40 – 250, wherein the coating is on a substantially transparent surface and the coating is removable with a removing agent comprising a base, preferably strong, and a complex former. The invention is further directed to a method of making the protective coating as recited in claims 46-49.

The present invention relates to a removable protective coating for greenhouses and the like. During the spring and summer, the crops that are grown in a greenhouse often need to be protected from conditions created by harsh sunlight. Light of great intensity, and heat caused by such light, have an adverse effect on such crops. Thus a protective coating is needed to offset the effects of such light and heat. On the other hand, in the wintertime, such coatings are undesirable as the crops might suffer from a shortage of light, obstructing photosynthesis within the plants. Thus a removable protective coating is desired.

However, prior art coatings either do not offer the desired protection because they do not have sufficient adhesive strength to remain intact, or if they do remain intact, they are too difficult to remove. In addition, prior art coatings do not protect the plants sufficiently against solar radiation.

The instant claimed coating offers the desired protection. The claimed coating has sufficient adhesive strength to adhere to the substrate and sufficient cohesive strength to remain intact. The coating has strong resistance to various weather influences, such as rain, frost and UV radiation. The coating contains a binder that has high UV stability, which makes the coating more durable than prior art coatings and contains pigments, which impart to the coating the desired protective action against solar radiation. The coating is also easy to apply to the intended surface and is easily removable. Specifically, the coating can be removed in a manner that is not particularly labor-intensive nor requires chemicals that harm the environment.

The claimed invention solves the problem of providing a durable, adhesive coating that is removable which is lacking in the prior art. None of the prior art teach or suggest the removable coating of the claimed invention.

Prior Art Rejections

Claims 1-14 stand rejected as anticipated by EP'498. This rejection is respectfully in error and should be withdrawn.

For a reference to anticipate a claim, that reference must teach each and every element of that claim. EP'498 is directed to a specific acrylic polymer, which is obtained by a bulk polymerization reaction. The intended uses of the polymer are *inter alia* acrylic rubbers, pressure-sensitive adhesives, dispersants, additives to asphalt, coatings, fiber processing agents, and improvers for resins and inks. EP'498 does not teach a removable protective coating on a substantially transparent surface.

Moreover, nothing in EP'498 teaches one of ordinary skill in the art how to address specific problems associated with protective coatings for substantially transparent surfaces. EP'498 does not teach a coating that includes the specific amounts and types of binders and pigments that need to be used to create the instant invention. Withdrawal of this rejection is requested.

Claims 1-14 stand rejected as anticipated by EP'067 or alternatively as obvious over EP'067. EP'067 discloses a previous development of the present applicants. As stated above, for a reference to anticipate a claim, it must satisfy each and every element of the claim. EP'067 does not specifically teach the ranges claimed in the instant application. Moreover, the only binder exemplified by EP'067 does not fall within the scope of the instant claims. Therefore EP'067 does not anticipate the instant claims.

The protective coating of the instant claims provides unexpectedly improved results in view of EP'067. Unlike EP'067, a protective coating in accordance with the instant claims has high UV stability and is the binder of the instant claims is substantially more durable than that of EP'067.

In order to demonstrate the unexpected nature of the claimed invention in view of EP '067, attached is a Rule 132 declaration executed by Antonius Franciscus Maria Bertels. The only binder disclosed in the example of EP '067 is a styrene maleic anhydride copolymer that has an acid value of 220, a glass transition temperature of 110 °C, a number average molecular weight of 3600, a weight average molecular weight of 9000, and a polydispersity of 2.5.

As demonstrated in the Declaration, the EP '067 binder has relatively low UV stability, and when exposed to the sun, the cohesive strength deteriorates. These properties of the EP '067 binder make the coating rather brittle, and thus too fragile for use outdoors. In practice, it was found that coatings applied in accordance with EP'067 need to be reapplied two to three times in one season.

In contrast, the binder disclosed in the instant claims is more durable than that of EP '067 and has high UV stability. The binder has an acid value of 40 to 250, a glass transition temperature of 10 to 60 °C, a weight average molecular weight of 10,000 to 100,000, and a polydispersity of 2 to 6. It was found that a coating comprising a binder satisfying all of these criteria meets the requirements for creating a coating that has sufficient adhesive strength to the substrate on which it is applied and sufficient cohesive strength to remain intact. The protective coating of the instant claims is durable throughout the season without need for repair. Yet the coating is easily removable by a base.

The inventors of the instant invention were not aware that a coating having the specific criteria of the claimed invention would provide such improved results over the coating disclosed in EP '067. Because EP '067 neither anticipates the instant invention, nor teaches or suggests the coating claimed in the instant invention, withdrawal of the rejection is requested.

Claims 18-19 stand rejected as being obvious over EP'367 in view of EP'067. This rejection is in error and should be withdrawn.

EP'367 discloses forming a protective coating on products to protect such products in transport and from the elements. The protective coating is used on metallic substrates and is designed to protect against corrosion and the like (see page 4, line 37). EP'367 contains no pigment and there is no motivation to add a pigment to this coating.

EP'367 does not teach or suggest forming a protective coating on a substantially transparent substrate in accordance with the instant claims. There is no reason that one skilled in the art would have used a coating designed to prevent corrosion on a metal surface as a coating on a substantially transparent surface. Moreover, the protection afforded by the protective coating of the instant claims is not to the transparent surface itself but to the objects covered by the substantially transparent surface.

The coating described in EP'367 is removable using an alkaline solution. However, it is apparent that the coating of EP'367 is difficult to remove. After application of a 1% solution of monoethanolamine (an alkaline aqueous solution), the coating is removed by washing with water (see page 5, line 16). This implies that mechanical labor is required to remove the coating. This is highly disadvantageous for cleaning large surfaces.

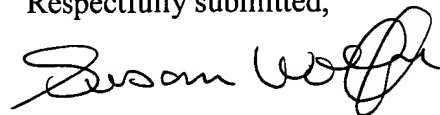
EP'067 does not remedy the defects of EP'367. EP'067 discloses a protective coating and a method of forming such coating against solar radiation for glass plates and outer surfaces of greenhouses. The coating consists of a polymer and one or more inorganic pigments with the coating. One skilled in the art would not have modified the coating for metal substrates based on the coating of EP'067 for transparent surfaces. The coatings are non-analogous. There is no need for a pigment for the disclosed purposes of EP'367 and adding a pigment would clearly be through the hindsight afforded by the claimed invention. Moreover, EP'367 contains organic solvents, which would be highly undesirable in the coatings of EP'067 designed for outdoor use. Organic solvents can damage the environment and the evaporation of the solvents can be considered harmful.

One skilled in the art would not have modified the coating of EP'367 based on the coating of EP'067. Withdrawal of the instant rejection is requested.

CONCLUSION

In view of the above amendments and remarks, withdrawal of the rejections and issuance of a Notice of Allowance is respectfully requested.

Respectfully submitted,



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Date: July 24, 2002

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